UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,266	03/27/2002	Tadao Ohno	P21324	9535

7055 7590 11/01/2005

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER	
YU, MISOOK	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/890,266	OHNO ET AL.	
	Examiner	Art Unit	
	MISOOK YU, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims 1 and 3-19 are pending and under consideration.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Information Disclosure Statement

The IDS with OIPE date of 02/27/2004 has been considered, and a copy of 1449 was mailed to applicant on 3/29/2005. The IDS has been considered to the extent that the examiner could understand. The examiner could not read or understand Chinese. However, the abstract in English translation and the Chinese Patent Office's search report in English translation were considered.

Claim Rejections - 35 USC § 102

Claims 1, 3, 6, 7 remain rejected and new claims 17-19 are also rejected under 35 U.S.C. 102(b) as being anticipated by WO 98/16238 (Hiserodt, 23 April 1998, IDS fled on 30 July 2002).

There are two base claims, i.e. claims 1 and 6: Claim 1, and its dependent claims are drawn to a composition comprising two main components of (1) "a microparticle" comprising a fragment of solidified tumor tissues or cells, wherein the size of the fragment to allow phagocytosis, and (2) at least one isolated cytokine or cytokine-inducing agent, wherein the dependent claims 3 further specify that the composition of the base claims further comprises an adjuvant, wherein the new claims 17-19 specify the fragment of the base claim to be ground solidified tumor tissue or cells (tumor tissue homogenate), tumor tissues or cells bound to a particle, and tumor antigen bound to a

particle. Claim 6 is drawn to vaccine composition comprising a microparticle" comprising a fragment of solidified tumor tissues or cells, wherein the size of the fragment to allow phagocytosis, and the vaccine further comprises an adjuvant in the dependent claim 7.

Applicant argues that Hiserodt uses lymphocyte cells, which is not an isolated cytokine, and does not teach tumor vaccine comprising a microparticle of the instantly claimed invention and at least one isolated cytokine. This argument has been fully considered but found unpersuasive because Hiserodt at page 23 lines 5-9 teaches "isolated or recombinant cytokines" that are being used in combination with vaccine composition comprising the tumor tissue microparticle.

As stated in the previous Office action, the instant specification at page 7, second paragraph, where it discloses "The fixation method to prepare the solidified tumor material is not particularly limited, and any means available to those skilled in the art may be applied. For example, when a tissue fixing agent is used, neutral formalin, glutaraldehyde, an alcohol such as methanol and ethanol and the like can be used", the limitation "solidified tumor tissue" in claims 1 and 6, is interpreted as fixed tumor cells.

WO 98/16238 (Hiserodt) teaches, "the vaccine of this invention comprises two components. The first is a source of tumor antigen...A convenient source of tumor-associated antigen is tumor cells...The second component is to stimulation of the patient's immune system to produce an anti-tumor response." (Note page 6 lines 21-30); "The inactivated tumor cell may be substituted by an alternative source of tumor-associated antigen, such as a tumor cell homogenate, detergent lysate, or a purified

derivative thereof" (note page 6, line 38-40); "Cancer cells for use as a tumor antigen source can alternatively be fixed with such agents as glutaraldehyde, paraformaldehyde, or formalin. They may also be solubilized in an ionic or non-ionic detergent, such as deoxycholate or octyl glucoside, or lysed, for example using vaccinia virus" (note at page 15 lines 20-25). In summary, Hiserodt discloses two main active ingredients in the instantly claimed invention of tumor homogenate, which allows phagocytosis, and an isolated cytokine.

The limitation "ground solidified tumor tissues" in claim 17 is same as "homogenate" in Hiserodt because the definition of "homogenate" is "tissue that has been ground and mixed". Note the attached definition from the website Wordreference.com downloaded on 10/20/2005. As for new claims 18, and 19 drawn to tumor tissue or antigen bound to a particle, the Office turns to Merriam-Webster Online dictionary to figure out the difference between "microparticle" and "particle". Since microparticle is defined as very small particle (note the previously provided definition), and particle is defined as a minute quantity or fragments in the dictionary, and "microparticle" in the base claim is interpreted as being a fragment of tumor tissues, one embodiment being tumor tissue homogenate, "particle" in claims 18, and 19 are interpreted as clumped mixture of tumor tissue or cell homogenate. Hiserodt clearly communicates that the invention disclosed in the WIPO document is tumor vaccine comprising tumor tissue homogenate, and isolated or recombinant cytokine.

Thus, WO 98/16238 anticipates the instant claims 1, 3, 6, 7, and 17-19.

The rejection of claims 1, 4-6, and 8-16 under 35 U.S.C. 102(b) as being anticipated by Golumbek et al., (1993, IDS #5 filed on 12/10/2001, Cancer Res. Vol. 53, pages 5841-5844), or US Pat. 5, 861,159 (19 January 1999) is **withdrawn** because the Office interprets applicant argument on page 12, 2nd and 3rd full paragraphs as saying the irradiated tumor cells of the prior art of record are not included in the claimed invention. In other words, the limitation "fragment" in base claims 1, and 6 modifies both the tumor tissue and tumor cells.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4, 5, 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/16238 of record (Hiserodt, 23 April 1998, IDS fled on 30 July 2002, cit) in view of US Pat. 5, 861,159 of record (Pardoll, 19 January 1999).

Claims 1, 4, 5, 8-19 are drawn to a tumor vaccine comprising at least one cytokine and a fragment of tumor a tumor tissue or fragment of a tumor cell, wherein the fragment is homogenate (claim 17), bound to a particles (claims 18, and 19), wherein claims 4, 8, 9, and 13 specify that the cytokine of the base claims to be in an controlled-release form, and claims 5, 10, 11, 12, and 14-16 specify the cytokine of the base claims to be GM-CSF.

WO 98/16238 teaches tumor vaccine comprising at least one cytokine and a fragment of tumor a tumor tissue or fragment of a tumor cell, i.e. tumor tissue cell homogenate. See 102(b) rejection above for further detail.

WO 98/16238 does not teach controlled release vehicle containing GM-CSF. However, US Pat. 5, 861,159 teaches a pharmaceutical composition comprising controlled release vehicle containing GM-CSF or interferon (note for example, claim 10), and teach advantage using the controlled release vehicle containing GM-CSF is to provide a suitable means to administer these less stable substances such as cytokines to a host (note in the section titled "Description of Related Art". The '159 patent at Fig. 3, and column 14 also teaches that controlled release vehicle containing GM-CSF has good immunopotentiating effect when used with tumor antigen for cancer immunotherapy.

Therefore, it would have been obvious for one of ordinary skill to make and use controlled release vehicle containing GM-CSF as at least one isolated cytokine in connection with tumor tissue cell homogenate of WO 98/16238 with a reasonable expectation of success for cancer immunotherapy. One of ordinary skill would have been motivated to use the controlled release vehicle containing GM-CSF as at least one isolated cytokine in cancer immunotherapy because it provides a sustained release of the cytokine without being degraded quickly in vivo, thus reducing the frequency of the painful injections to a patient already suffering from cancer, as well as reducing the cost with the injections by minimizing the unnecessary injections.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MISOOK YU, Ph.D. whose telephone number is 571-272-0839. The examiner can normally be reached on 8 A.M. to 5:30 P.M., every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MISOOK YU, Ph.D.
Examiner
Art Unit 1642